

Features

- Low forward voltage drop
- High junction temperature
- Moisture sensitivity: level 1, per J-STD-020
- Plastic package has underwriters laboratory flammability classification 94V-0
- Add suffix 'E' for halogen-free
- Halogen-free according to IEC 61249-2-21 definition



Package: DO-214AB (SMC)

Applications

For use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

Maximum Ratings (T_A = 25°C unless otherwise noted)

| Parameter | Symbol | SK57 SK57E | SK58 SK58E | SK59 SK59E | SK5B SK5BE | Unit |
|--|-----------------------------------|---------------|---------------|---------------|---------------|------|
| Maximum Repetitive Peak Reverse Voltage | V _{RRM} | 70 | 80 | 90 | 100 | V |
| Maximum RMS Voltage | V _{RMS} | 42 | 56 | 63 | 70 | V |
| Maximum DC Blocking Voltage | V _{DC} | 70 | 80 | 90 | 100 | V |
| Maximum Average Forward Rectified Current | I _{F(AV)} | 5.0 | | | | A |
| Peak Forward Surge Current (8.3 ms single half sine-wave superimposed on rated load) | I _{FSM} | 120 | | | | A |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | | | | °C |

Electrical Characteristics (T_A = 25°C unless otherwise noted)

| Parameter | Test Conditions | Symbol | Value | Unit |
|---|-----------------------|----------------|-------|------|
| Maximum Instantaneous Forward Voltage | I _F =5A | V _F | 0.79 | V |
| Maximum DC Reverse Current at Rated DC Blocking Voltage | T _A =25°C | I _R | 30 | μA |
| | T _A =125°C | | 2000 | |
| Typical Junction Capacitance | 4.0 V, 1 MHz | C _J | 96 | pF |

Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|---|------------------|-------|------|
| Typical Thermal Resistance ⁽¹⁾ | R _{θJA} | 62 | °C/W |
| | R _{θJC} | 22 | |
| | R _{θJL} | 15 | |

Note1: Thermal resistance from junction to lead, mounted on PCB with 8.0×8.0mm copper pads.

Ratings and Characteristics Curves

($T_A = 25^\circ\text{C}$ unless otherwise noted)

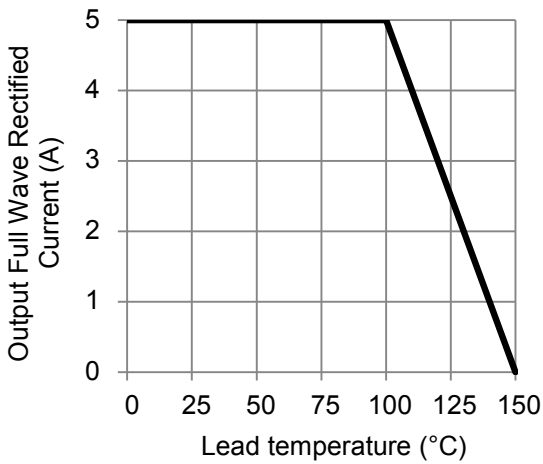


Figure 1. Forward Current Derating Curve

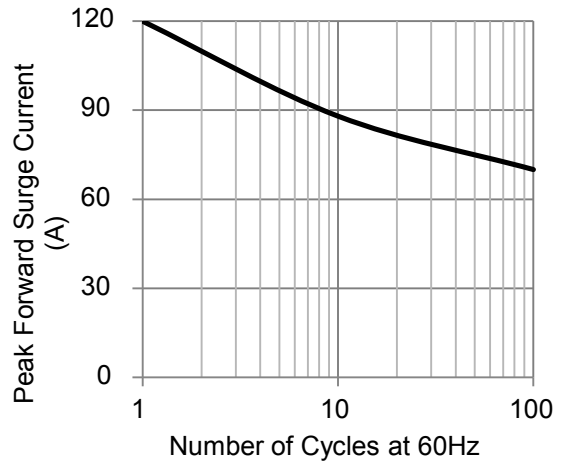


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

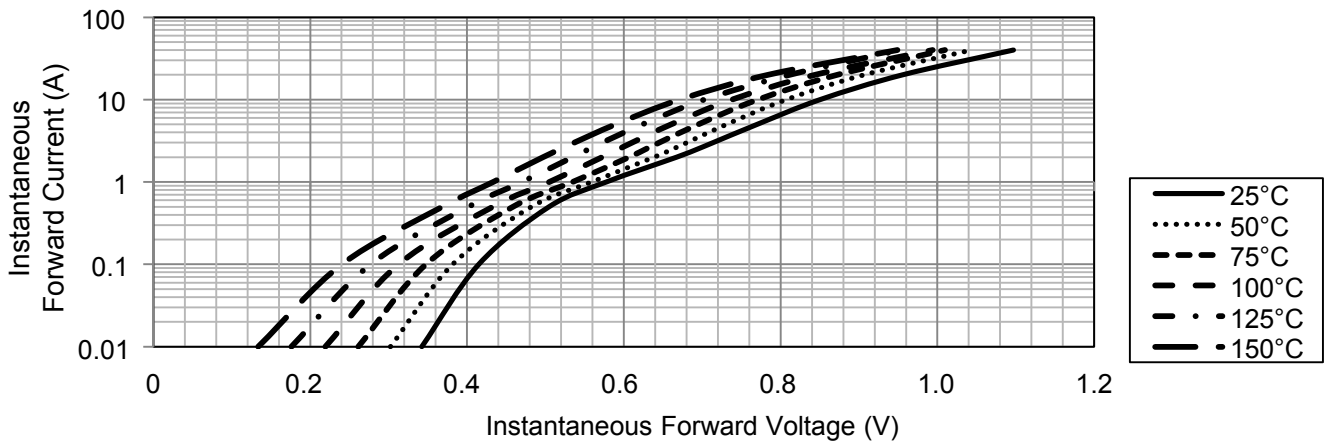


Figure 3. Typical Instantaneous Forward Characteristics

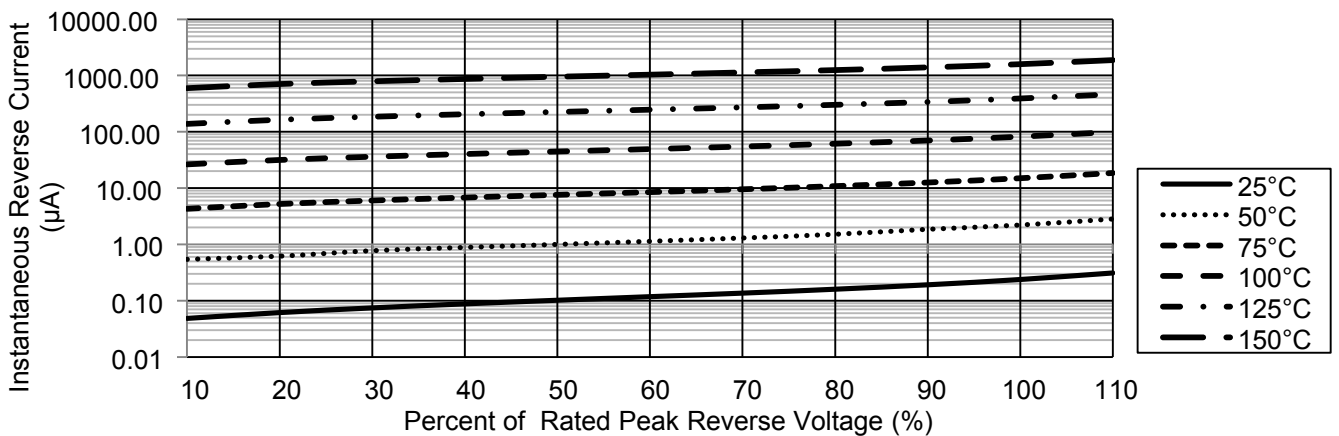
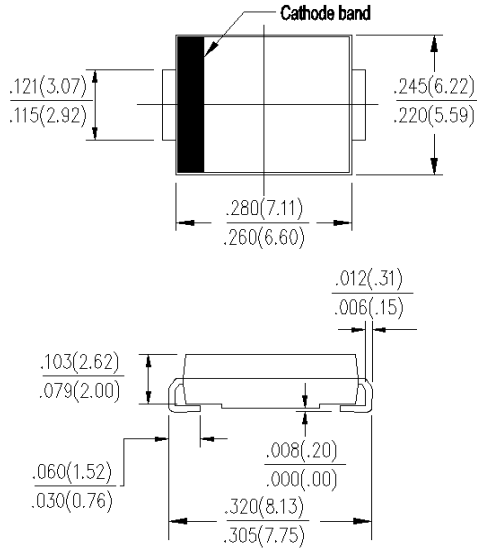


Figure 4. Typical Reverse Characteristics

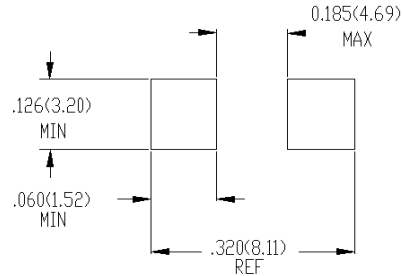
Package Outline Dimensions

in inches (millimeters)

DO-214AB (SMC)



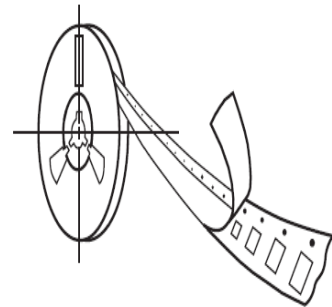
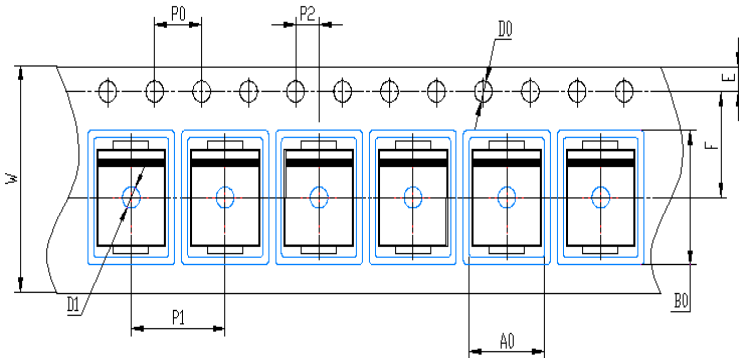
Mounting Pad Layout



Packing Information

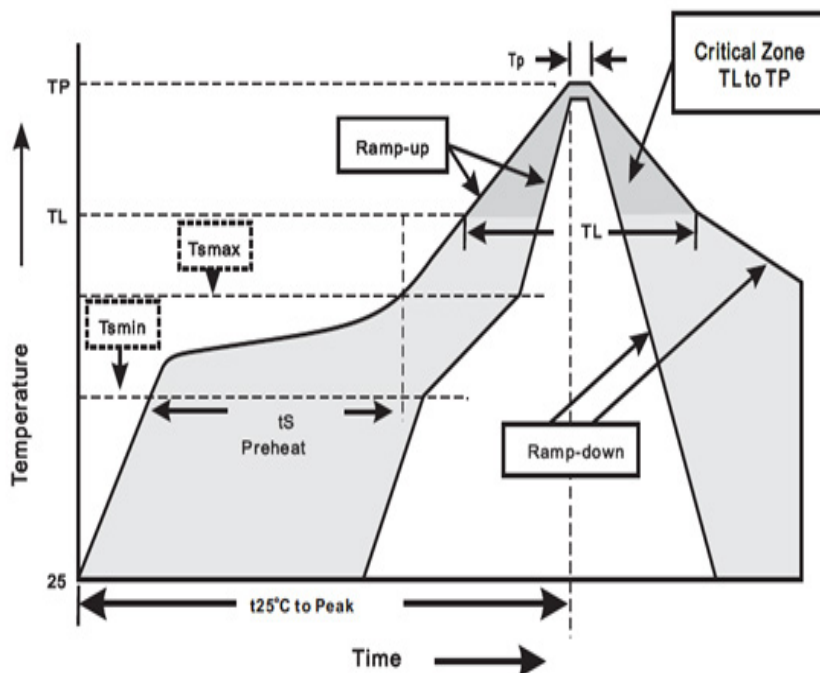
3000 pcs/Reel, 14 Reels/Box; 16mm Tape, 13" Reel

Tape & Reel Specification



| Symbol | SMC(mm) |
|--------|--------------|
| W | 16±0.2 |
| E | 1.75±0.1 |
| F | 7.5±0.05 |
| D0 | 1.5±0.1 |
| D1 | 1.50 +0.1/-0 |
| P0 | 4.0±0.1 |
| P1 | 8.0±0.1 |
| P2 | 2.0±0.05 |
| A0 | 6.22±0.1 |
| B0 | 8.31±0.1 |

Soldering Parameters



| Reflow Soldering | | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|---|-------------------------------|-------------------------|------------------|
| Pre Heat | - Temperature Min (Ts min) | 100°C | 150°C |
| | - Temperature Max (Ts max) | 150°C | 200°C |
| | - Time (min to max) (ts) | 60 – 120 secs | 60 – 180 secs |
| Average ramp up rate (Liquidus) Temp (TL) to peak | | 3°C/second max | 3°C/second max |
| TS(max) to TL - Ramp-up Rate | | 3°C/second max | 3°C/second max |
| Reflow | - Temperature (TL) (Liquidus) | 183°C | 217°C |
| | - Time (min to max) (ts) | 60 – 150 seconds | 60 – 150 seconds |
| Peak Temperature (TP) | | 240+0/-5 °C | 240+0/-5°C |
| Time within 5°C of actual peak Temperature (tp) | | 10 –30 seconds | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max | 6°C/second max |
| Time 25°C to peak Temperature (TP) | | 6 minutes max | 8 minutes max |
| Do not exceed | | 260°C | 260°C |

| Wave Soldering | |
|------------------|------------|
| Peak Temperature | 260+0/-5°C |
| Dipping Time | 10 seconds |
| Soldering | 1 time |